

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT****Location:** Changxing Island, Shanghai, P.R. China**Report No:** NCR-000609**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 06-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0582**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: Lift 12 Longitudinal Diaphragm
Procedural	Procedural	Description:	

Reference Description: ZPMC performed welding repair of an MT Transverse Indication without the prior approval of the Engineer for a Lift 12 LD

Description of Non-Conformance:

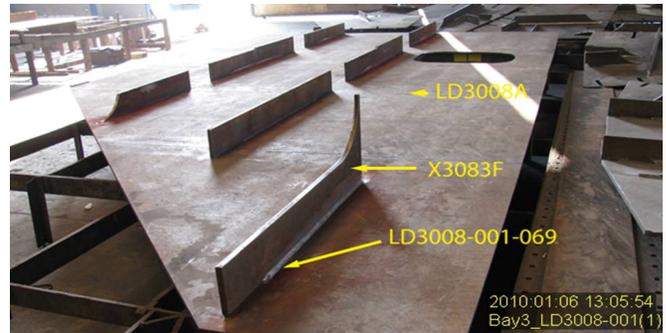
During random in progress inspection, this Quality Assurance (QA) Inspector observed the following issues:

- ZPMC Production Personnel was observed excavating a Longitudinal Linear MT Indication identified by ZPMC's MT Technician as a transverse crack, without having a Critical Weld Repair (CWR).
- One (1) Longitudinal linear indication measuring approximately 8mm in length.
- The weld is identified as: LD3008-001-069.
- These welds are a Fillet Weld type joining the Longitudinal Diaphragm Stiffener (X3083F) to Longitudinal Diaphragm (LD3008A) web plate.
- The Longitudinal Diaphragm is located in the Sub-Assembly Bay 3.



QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 3)



Applicable reference:

Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

AWS D1.5 (02) Section 6.26.2 – “Welds that are subject to MT in addition to visual inspection shall have no cracks.

Special Provisions Section 8-3; The Engineer shall be notified in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered and also of the proposal repair procedures to correct them.

AWS D1.5-2002 Section 3.7.4; Prior approval of the Engineer shall be obtained for repairs to base metal, repairs of major or delayed cracks.

AWS D1.5-2002 Section 6.3.1; The inspector shall make certain that all WPS’s are qualified in conformance with Section 5 of this code The inspector shall make certain that each welding operation is covered by a written WPS and that such WPS’s are available to the welders and inspectors for reference.

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 3 of 3)

Who discovered the problem: Stefan Holmes
Name of individual from Contractor notified: Yin Dong Hai
Time and method of notification: 1000 hours, 01-06-10, Verbal
Name of Caltrans Engineer notified: Bill Howe
Time and method of notification: 1530 hours, 01-06-10, Verbal
QC Inspector's Name: Jin Jiang Ting
Was QC Inspector aware of the problem: Yes No
Contractor's proposal to correct the problem:

N/A

Comments:

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, +(86) 134.7247.7571, who represents the Office of Structural Materials for your project.

Inspected By:	Carreon,Albert	Lead Reviewer/Task Leader
Reviewed By:	Wahbeh,Mazen	SMR

NCR PROPOSED RESOLUTION

To: CALTRANS - SAS Superstructure
333 Burma Road
Oakland CA 94607

Dated: 11-Feb-2010

Contract No.: 04-0120F4
04-SF-80-13.2 / 13.9

Attention: Pursell, Gary
Resident Engineer

Job Name: SAS Superstructure

Ref: 05.03.06-000572

Document No.: ABF-NPR-000595 **Rev:** 00

Subject: NCR No. ZPMC-0582

Contractor's Proposed Resolution:

Reference Resolution: When ZPMC determined it was a crack they generated a CWR for Caltrans approval before proceeding with work. Attached is the CWR showing that Caltrans reviewed the CWR.

In this case, the inspector observed ZPMC performing exploratory grinding to determine if the indication was actually a crack which does not require approval. When ZPMC determined it was a crack they generated a CWR for Caltrans approval before proceeding with work. Attached is the CWR showing that Caltrans reviewed the CWR. Based on this misunderstanding ZPMC requests that this NCR be withdrawn and closed.

Submitted by: Ishibashi, Joshua

Attachment(s): ABF-NPR-000595R00;

Caltrans' comments:

Status: CLO

Date: 14-Feb-2010

The documentation received is sufficient to close this NCR.

Submitted by: Howe, Bill

Date: 14-Feb-2010

Attachment(s):



No. B-609

LETTER OF RESPONSE

TO: American Bridge/Flour

DATE: 2010-2-11

REGARDING: NCR-00609 (ZPMC-0582)

With this letter of response, ZPMC requests withdraw of CT NCR-000609 (ZPMC-0582) , what mentioned that CT Inspector observed excavating was performing without CWR.

- As per discussed with ABF QCM, the grinding for removing MT indication do not need any report.
- This MT linear indication was confirmed to be Crack after grinding.
- ZPMC has issued CWR prior to welding repair.
- A misunderstanding for the repair procedure of crack occurred by this CT inspector.

Based on the responses above and attached documentations, ZPMC requests withdrawal of this NCR.

ATTACHMENT:

NCR-000609 (ZPMC-0582)

B-CWR1052

Im 20

2/11/10



DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
333 Burma Road
Oakland CA 94607
Tel: Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

To: AMERICAN BRIDGE/FLUOR, A JV
375 BURMA ROAD
OAKLAND CA 95607

Date: 07-Jan-2010

Contract No: 04-0120F4
04-SF-80-13.2 / 13.9

Dear: Mr. Charles Kanapicki
Attention: Mr. Thomas Nilsson Project/Fabrication Manager
Subject: NCR No. ZPMC-0582

Job Name: SAS Superstructure
Document No: 05.03.06-000572

Reference Description: ZPMC performed welding repair of an MT Transverse Indication without the prior approval of the Engineer for a Lift 12 LD

The attached Non-Conformance Report describes an occurrence where the contractor did not comply with a requirement of the contract document as indicated below:

- Material or Workmanship not in conformance with contract documents.
- Quality Control (QC) not performed in conformance with contract documents.
- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

Material Location: OBG

Lift: 12

Remarks:

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- These welds are a Fillet Weld type joining the Longitudinal Diaphragm Stiffener (X3083F) to Longitudinal Diaphragm (LD3008A) web plate.
- The Longitudinal Diaphragm is located in the Sub-Assembly Bay 3.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance with revised procedures to prevent future occurrences. A response for the resolution of this issue is expected within 7 days.

Transmitted by: Bill Howe Sr. Transportation Engineer

Attachments: ZPMC-0582

cc: Rick Morrow, Gary Pursell, Peter Siegenthaler, Stanley Ku, Brian Boal, Jason Tom, Contract Files, Ching Chao
File: 05.03.06

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Contract #: 04-0120F4

Cty: SF/ALA Rte: 80 PM: 13.2/13.9

File #: 69.25B

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT**Location:** Changxing Island, Shanghai, P.R. China**Report No:** NCR-000609**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 06-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0582**Type of problem:**Welding Concrete Other Welding Curing Procedural **Bridge No:** 34-0006Joint fit-up Coating Other **Component:** Lift 12 Longitudinal DiaphragmProcedural Procedural Description: **Reference Description:** ZPMC performed welding repair of an MT Transverse Indication without the prior approval of the Engineer for a Lift 12 LD**Description of Non-Conformance:**

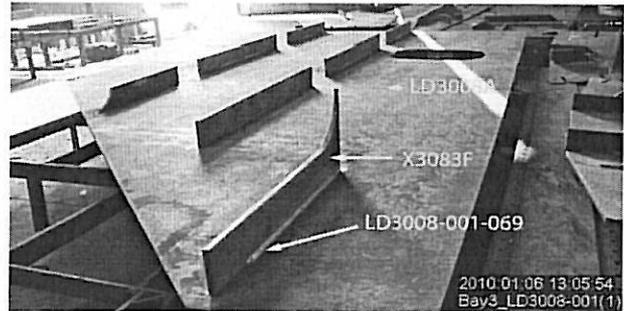
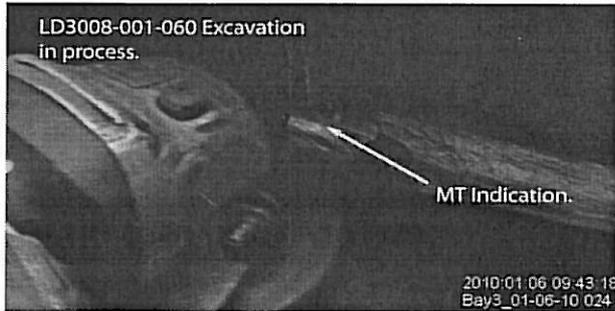
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QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 3)



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QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 3 of 3)

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Time and method of notification: 1000 hours, 01-06-10, Verbal
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Was QC Inspector aware of the problem: Yes No
Contractor's proposal to correct the problem:
N/A

Comments:

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Inspected By: Carreon,Albert	Lead Reviewer/Task Leader
Reviewed By: Wahbeh,Mazen	SMR



关键焊缝返修报告
Critical Welding Repair Report (CWR)

版本
Rev. No.:

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	LD3008	报告编号 Report No.:	B-CWR1052
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	OBG THE 12 LONGIT UDINAL DIAPHRAGM	NDT 报告编号 NDT Report No.:	B787-MT-17560
项目编号 Project No.:	ZP06-787				

焊缝缺陷描述:

Description of Welding Discontinuity:

Welder ID No. (焊工编号): 044790 Position: (位置): 2G

One transverse crack was found by use of MT on LD3008-001-069

检验员 (Inspector): Jin jian ting

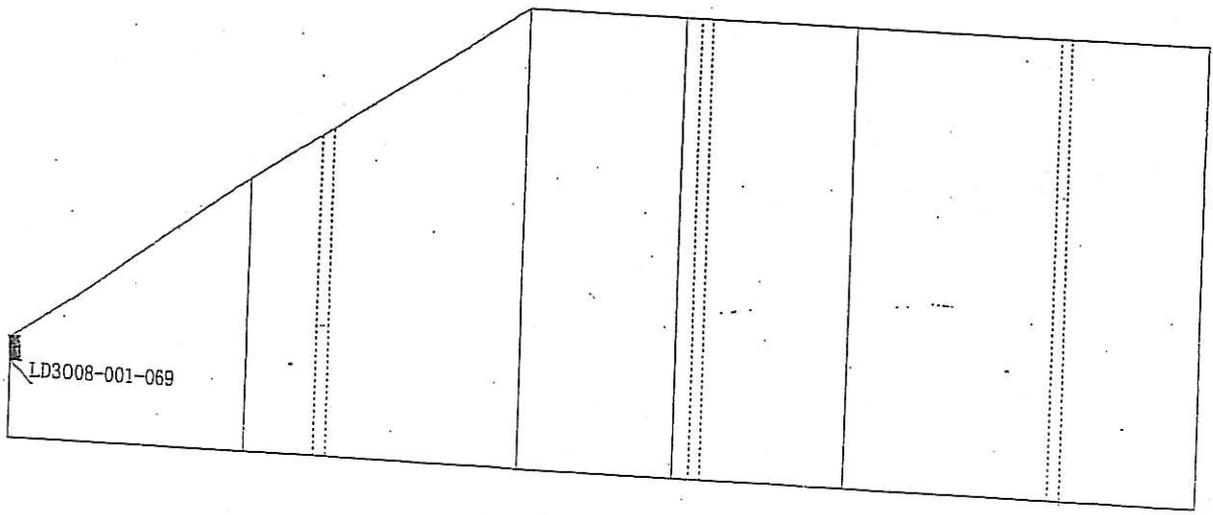
Jin jian ting

日期 (Date): 2010-01-08

10-01-08

焊缝返修位置示意图:

Draft of Welding Discontinuity:



This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 6108 of the
Standard Specifications
Date: *1/14/10*

产生原因:

Cause:

1. 火焰加热时,水汽没有完全的去除了或者这个区域预热不够;
1. Moisture wasn't completely removed during drying operation (preheating) or the area wasn't preheated sufficiently.

车间负责人 (Foreman):

Hu Yuzhong

日期 (Date):

10-1-8

处理意见

Disposition:

1. 这次返修时, QC和Leader CWI到现场对打磨, 焊接进行指导和监控工作以保证返修按照处理意见进行;
2. 整个返修的过程, QC和Leader CWI应该有批准CWR的复印件;
3. 去除热影响区域上在各个方向上不小于25mm范围内的油漆;
4. 将杂物以及MT检测遗留的残留物清理干净。然后采用打磨的方法去除裂纹, 打磨前预热至65° C。对于单个裂纹返修, 打磨返修范围清除长度为沿裂纹长度加上超出其每一端50mm;
5. 如果打磨时母材损伤, 则在返修前将损伤区域打磨干净;
6. 焊接前按照新的焊接返修工艺准备各焊缝接头形式;
7. 返修前, VT和MT检测确认返修区域没有裂纹及其他缺陷存在, 同时靠近裂纹的母材也要做MT, 保证没有裂纹延伸到母材。如果在母材上发现裂纹, 则另外需CWR, 且只有当这份另出的CWR批准后才能继续返修;
8. 将杂物以及MT检测遗留的残留物清理干净。按照WPS进行预热和焊接, 预热温度为160° C-230° C;
9. 如果打磨深度达到(2/3T+2)mm, 但是缺陷仍然存在, 则停止打磨, 将坡口打磨平滑, 且挖出的凹槽部分两个端头要有1: 1的斜势过渡, 然后按照批准的WPS进行第一个面的焊接, 焊接前需至少160° C的预热。从反面进行打磨直至露出金属光泽, 并对打磨后坡口位置进行100%MT检测, 确保裂纹清除干净, 然后将坡口打磨平滑, 确保来两个端头有1: 1的斜势过渡, 并按照WPS的要求进行反面的焊接。

10. 焊接后WPS要求进行后热, 后热温度为230° C-315° C, 后热时间至少1个小时;
11. 后热后将焊缝逐渐冷却到周围环境温度, 并控制冷却速率不超过50° C每小时;
12. 后热后将修补区域打磨与母材或相邻焊缝平齐;
13. 在焊缝冷却至环境温度至少经过48小时以后进行NDT检查;
14. 返修后根据图纸进行VT, UT和MT检测, 并按照合同10-1.59 “钢结构” 中的“检测和试验” 要求进行附加MT检测。

This document is APPROVED
 State of California
 DEPARTMENT OF TRANSPORTATION
 Pursuant to Section 5-1.02 of the
 Standard Specifications
 Initial: [Signature] Date: 1/14/10

1. QC and a Lead CWI shall be present, direct and supervise all grinding and welding operations during this repair to ensure the repair is per the disposition requirements.
2. QC and a Lead CWI shall have an approved copy of the CWR in hand prior to the repair.
3. Remove paint ≥ 25 mm in all direction of HAZ prior to MT.
4. Clean the excavation area of all loose debris including MT powder. Preheat to 65° C before removing cracks by grinding and it applied to all the repair process. Repair area shall extend a minimum of 50mm beyond each end of single crack repairs.
5. If base metal is damaged by grinding, the damaged area shall be ground clean prior to performing weld repair.
6. Prepare excavation in accordance with the New Repair Procedure prior to welding.
7. Before this repair, Verify with VT and MT repair areas are defects free, and also MT shall be performed on the base metal laying abroad cracks to ensure that no cracks were propagated to the base metal. Separate CWR approval is needed if cracks are found in the base metal, and only after this new CWR's approval can continue the repair.
8. Clean excavation area of all loose debris including MT powder after excavation. Preheat and weld according to repair WPS, the preheat shall between 160° C-230° C.
9. If a crack still present and excavation have reached (2/3T+2)mm maximum, the grinding work shall be ceased. Prepare excavation that all metal is ground clean to a smooth, shiny metal finish and starts and stops are tapered to a 1:1 slope. Weld first side of repair according to approved WPS, and the preheat temperature be 160° C at least. Grind from the opposite side until sound weld metal is reached and perform 100% MT of excavation to ensure no crack exists. Prepare excavation that all metal is ground-clean to a smooth, shiny metal finish and starts and stops are tapered to a 1:1 slope. Weld opposite side of repair according to approved WPS.
10. Perform post weld heating according to repair WPS, the postheat shall between 230° C-315° C and for one hour minimum.
11. Allow the weld to cool to ambient temperature gradually. Control cooling rate after PWHT to no more than 50° C per hour.
12. Grind the repaired area flush with base metal or the adjacent weld after post weld heating.
13. Wait 48 hours at least after the repair area has cooled to ambient temperature before performing NDT.
14. Perform VT, UT and MT inspection to all repair area according to Contract Drawings along with all additional NDT required by the applicable notes Special Provision Section 10-1.59 'Steel Structure', subsection 'Inspection testing'.

工艺:

审核:

Technical Engineer: He Xiaobin

Approved By: [Signature]

日期:

Date:

10-1-9



关键焊缝返修报告

Critical Welding Repair Report (CWR)

版本
Rev. No.:

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	LD3008	报告编号 Report No.:	B-CWR1052
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	OBG THE 12 LONGI TUDINAL DIAPHRAG M	NDT 报告编号 NDT Report No.:	B787-MT-17560
项目编号 Project No.:	ZP06-787				

纠正措施:

Corrective Action to Prevent Re-occurrence:

1. 返修前, QC确认有效的预热, 以将水汽全部去除。

1. QC shall verify sufficient preheat has been applied, to remove moisture, prior to welding.

THIS DOCUMENT IS APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial: *[Signature]* Date: 1/14/10

车间负责人 (Foreman):

Hu Y Zhang

日期 (Date):

10.1.8

参照的WPS编号 Repair WPS No.:	WPS-345-SMAW-2G(2F)-Repair	工艺员 Technologist:	<i>He Xiaobin</i> 10.1.9
返修(碳刨)前预热温度 Preheat Temperature Before Gouging:	<i>NA</i>	返修的缺陷 Description of Discontinuity:	NA crack
焊前处理检查 Inspection Before Welding:	<i>All</i>	焊前预热温度 Preheat Temperature Before Welding:	<i>173°C</i>
最大碳刨深度 Max. Depth of Gouge:	<i>NA</i>	碳刨总长 Total Length of Gouge:	<i>NA</i>
焊工 Welder:	<i>258102</i>	焊接类型 Welding Type:	<i>SMAW</i>
焊接电流 Current:	<i>163A</i>	焊接电压 Voltage:	<i>25.1V</i>
		焊接位置 Position:	<i>2G</i>
		焊接速度 Speed:	<i>110mm/min</i>

返修后检查

Inspection After Repair:

245°C 1.5h

外观检查 VT Result:	<i>Au</i>	检验员 Inspector:	<i>Chen Xi</i>	日期 Date:	<i>2010.01.18</i>
NDT复检 NDT Result:	<i>Au</i>	探伤员 NDT Person:	<i>Jim Han Ting</i>	日期 Date:	<i>1/21</i>

见证:

Witness/Review:

备注:

Remark:

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, P.R. China**Report No:** NCS-000535**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 11-Mar-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0582**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component:
Procedural	Procedural	Descriptor:	

Date the Non-Conformance Report was written: 06-Jan-2010**Description of Non-Conformance:**

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- The Longitudinal Diaphragm is located in the Sub-Assembly Bay 3.

Contractor's proposal to correct the problem:

Submit CWR for Engineer's approval prior to repairing said indication.

Corrective action taken:

Contractor submitted CWR, B-CWR1052, for Engineer's review prior to performing repair work at said location. B-CWR1052 was approved by the Department on 01-14-2010.

Did corrective action require Engineer's approval? Yes No**If so, name of Engineer providing approval:****Date:****Is Engineer's approval attached?** Yes No**Comments:**

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Inspected By: Simonis, Jim

Quality Assurance Inspector

Reviewed By: Wahbeh, Mazen

QA Reviewer